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The Supreme Court, Privacy, and Abortion

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POUNDS, KILOGRAMS, NEWTONS, AND UNITS OF FORCE

To the Editor: A recurrent problem in the medical literature is the incorrect choice of units to express force or tension. This error is pervasive and is found in textbooks of medicine and physiology as well as in two recent articles in the *Journal*.[1,2] Urbano-Marquez and colleagues mistakenly expressed strength and force in kilograms, and Lüscher et al. incorrectly reported tension in grams. Although the use of units of mass to express a magnitude of force may be conceptually satisfying, it is scientifically incorrect.

The confusion about these units appears to arise from the commonly used formula for converting pounds and kilograms: 2.2 lb = 1.0 kg. This formula, however, is incorrect, because the pound is a unit of force or weight, whereas the kilogram is a unit of mass. It is true that a 2.2-lb object has a mass of 1.0 kg, but units of force are not interchangeable with units of mass. Under ordinary circumstances, force (F) and mass (m) are interrelated with the acceleration due to gravity (g) by the following formula: $F = mg$. The pound is the unit of force in the British Engineering system, but the newton (N) and dyne (dyn) are the units of force in the metric system. If one assumes that g on earth is approximately 9.8 $msec^{-2}$, then it is possible to derive the following formulas[3]:

$$F = 1.0 \text{ lb} = (1/2.2) \text{ kg} \times 9.8 \text{ msec}^{-2}$$
$$= 4.45 \text{ N} = 4.45 \times 10^5 \text{ dyn},$$

and

$$F = 0.2247 \text{ lb} = 1.0 \text{ N} = 10^5 \text{ dyn}.$$

Why is it important to discontinue the use of the kilogram as a unit of force? No scientist would intentionally use the meter as a unit of volume. It would obviously be incorrect. Using the kilogram as a unit of force is also incorrect. Moreover, it detracts from our credibility as medical scientists. Therefore, it is imperative that we stop using the kilogram as a unit of force.

I hope that these comments will alleviate future confusion about the units of force and thus make medical literature more scientifically correct.

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2. Lüscher TF, Diederich D, Siebenmann R, et al. Difference between endothelium-dependent relaxation in arterial and in venous coronary bypass grafts. N Engl J Med 1988; 319:462-7.
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The above letter was referred to Dr. Rubin, who offers the following reply:

To the Editor: Dr. Duell is indeed correct, or perhaps hypercorrect. In our paper we did express force in kilograms (but only once). This use was colloquial rather than rigorously scientific, and we thus deserve to be chastised. The only mitigating force we plead is our use of the term "muscular strength" on all other occasions. This is an expression more suited to the human condition and more easily understood by physicians.

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OCCASIONAL NOTES

THE SUPREME COURT, PRIVACY, AND ABORTION

Feelings and opinions are strong and divided on both the 1973 U.S. Supreme Court decision on abortion in *Roe* v. *Wade*[1] and the Court's 1989 decision in *Webster*,[2] which signals a retreat from *Roe*. Opinion polls on abortion since 1973 show that Americans are deeply ambivalent on the issue. A consistent majority believes that abortion is immoral in most cases.[3,4] Nonetheless, overwhelming majorities believe that abortion should be available in cases of rape, incest, and severe genetic abnormality, and more than two thirds consistently say that although they believe abortion to be wrong or immoral, the ultimate decision should be made by a woman and her physician rather than by government decree.[3,4] As controversial as abortion and the role of government regulation are, a month after the *Webster* decision, the majority of Americans (59 percent) still said they had not heard enough about the case to express an opinion on it.[4]

Physicians' opinions seem to mirror those of society in general. For example, a 1985 survey of 1300 members of the American College of Obstetricians and Gynecologists found that 90 percent believed that the presence of fetal abnormalities was a legitimate reason for first-trimester abortions, and 84 percent thought it justified second-trimester abortions; fewer believed that abortion was justified by considerations of the woman's physical health (75 percent), rape or incest (68 percent), the woman's mental health (56 percent), economic difficulties (36 percent), and personal choice (36 percent).[5] Only about 25 percent of the public and 35 percent of obstetricians and gynecologists support "elective" abortions for whatever reason a woman may have.[5]

Although physicians probably know no more than the public about *Roe* and *Webster*, they should. Whatever one's position on the morality of abortion, it has become the most commonly performed surgical procedure in the United States over the past two decades, and the availability of abortion partly justifies other common medical procedures, such as amniocentesis and chorionic villus sampling. Physicians have a central role in counseling pregnant women about their health and the health of their fetuses, and any criminal restrictions state legislatures are allowed to place on the exercise of that role may also be placed on other medical procedures. The purpose of this article is to describe the state of the law since *Roe* v. *Wade* was decided, and the changes presaged by *Webster*.

Roe v. *Wade*

In *Roe* v. *Wade*[1] and all the abortion cases that followed it (other than those concerning the financing of abortion), the Supreme Court has been faced with

criminal statutes designed to limit access to abortion. In *Roe*, the Texas statute the Court was reviewing made it a crime to procure an abortion or to attempt one, except to save the life of the mother. Justice Harry Blackmun, former legal counsel to the Mayo Clinic, wrote the opinion of the Court. One of his major goals was to prevent the government from interfering with the practice of medicine and the doctor–patient relationship.[6]

The decision was seven to two, with Justices William Rehnquist and Byron White dissenting. Building on a series of cases, including a leading case that dealt with contraception[7] and described a "right to personal privacy, or a guarantee of certain areas or zones of privacy," the Court determined that a fundamental right of privacy existed "in the Fourteenth Amendment's concept of personal liberty and restrictions upon state action." The Court went on to hold that this fundamental right "is broad enough to encompass a woman's decision whether or not to terminate her pregnancy":

> The detriment that the State would impose upon the pregnant woman by denying this choice altogether is apparent. Specific and direct harm medically diagnosable even in early pregnancy may be involved. Maternity, or additional offspring, may force upon the woman a distressful life and future. Psychological harm may be imminent. Mental and physical health may be taxed by child care. . . . All these are factors the woman and her responsible physician necessarily will consider in consultation.[1]

Although granting decisions about abortion a very high degree of constitutional protection, the Court stopped short of declaring that a woman's right to an abortion was absolute or that she had a right to abortion on demand. Instead, the Court recognized that the state also had interests that might at times be compelling enough to limit abortion. The Court identified two such interests: the protection of maternal health and the protection of viable fetuses. The protection of maternal health has always been a legitimate interest of the state. The Court ruled, however, that this interest could never be compelling enough to prohibit abortion before the stage of pregnancy when it is less dangerous for the woman to carry the fetus to term than to have an abortion (which in 1973 was about the end of the first trimester). The Court decided that during the first trimester the state could regulate abortions to protect the woman's health only by requiring that they be performed by a physician. Thereafter it could regulate abortions to protect women only in ways reasonably calculated to enhance their personal health, rather than in ways designed to protect the fetus or simply to discourage abortions.

The second state interest the Court identified was that of "protecting the potentiality of human life." The Supreme Court did not decide that a fetus is not human, only that a fetus is not a "person" as that term is used in the Fourteenth Amendment. The Court also noted that "the pregnant woman cannot be isolated in her privacy"; her interests in privacy must be weighed against the state's interest in the life of the fetus. The question is, When does the state's interest become so compelling that the state can justifiably interfere with a woman's constitutional right to have an abortion? No satisfactory answer to this question can be garnered from science, and any demarcation in the pregnancy is inherently arbitrary.[5] The Court decided to choose the point of fetal viability — the point at which the fetus "is potentially able to live outside the mother's womb, albeit with artificial aid" — as the demarcation, apparently because at this point the fetus is biologically identical to a premature infant.

After the point of viability, which continues to occur near the end of the second trimester, varying somewhat with medical advances and skill, the state "may, if it chooses, regulate, and even proscribe, abortion except where it is necessary, in appropriate medical judgment, for the preservation of the life or health of the mother."[1] Although states can regulate abortions after the point of fetal viability (or, more accurately, can restrict the induction of premature birth), since *Roe* only 13 states have enacted laws to restrict such abortions.[8]

Decisions after *Roe*

In more than a dozen major cases over the succeeding 15 years, the Supreme Court applied *Roe* to specific attempts by some states to limit abortion rights during the first and second trimesters. Until 1989, the Court consistently struck down almost all such limitations. The Court did find it constitutional, however, for the state and federal governments to refuse to fund abortions through the Medicaid program, because in the Court's view, the failure to finance abortions did not place a governmental obstacle in the path of a woman who wanted to terminate her pregnancy.[9] The Court also ruled that states could properly mandate general informed-consent requirements, confidential record-keeping and reporting related to maternal health, pathological examination of fetal tissue, and the presence of a second physician when a pregnancy was terminated after the point of viability.[5] In the Court's view, none of these requirements limit a woman's ability to choose an abortion or a physician's ability to perform one.

Regulations that the Court rejected as unconstitutional under *Roe* included those giving the husband or father a veto over the woman's decision, requiring that specific and detailed information concerning fetal development be given to the woman, and mandating hospitalization.[5] By the mid-1980s the Court had made the precise contours of *Roe* very clear.[10]

Perhaps because the Supreme Court had been so consistent in upholding and expanding the rights recognized in *Roe*, opposition to it continued. A candidate's position on abortion rights became a litmus test in judicial appointments. Under President Reagan,

who said he considered abortion "murder," judges were appointed to the U.S. Supreme Court who were openly opposed to the *Roe* v. *Wade* decision. By 1989, three Reagan appointees, Sandra Day O'Connor, Antonin Scalia, and Anthony Kennedy, had joined the two dissenters in *Roe,* who were still on the Court, and the possibility that a five-justice majority might retreat from *Roe* v. *Wade* or overrule it entirely first appeared. Both sides in the abortion-rights debate were therefore hopeful or fearful of the Court's decision in *Webster,* and more friend-of-the-court briefs were filed in that case than in any other in the history of the United States.

The *Webster* Decision

In delivering its July 1989 opinion in *Webster,*[2] the Supreme Court reopened the national debate about the proper role of state governments in determining when abortions may take place within their borders, although technically the Court made no changes in *Roe* at all. At issue in *Webster* was a Missouri abortion statute that had 20 provisions. Because of the way the case was argued, the Court ruled on only three of them. The Court ruled that Missouri could constitutionally prohibit state-employed physicians from performing an abortion that was not necessary to save the life of a woman, could prohibit such an abortion from being performed in state facilities, and could require physicians to try to determine fetal viability at or after 20 weeks' gestation.

None of these statutory restrictions are inconsistent with *Roe,* although the first two, like the earlier Medicaid-funding decisions, will make it more difficult for poor women to obtain abortions. If this technical holding had been the only result of the case, it would have occasioned almost no comment. The case is important because five of the justices, writing three separate opinions, made it clear that they no longer believe the trimester scheme of *Roe* to be tenable, and four of them are ready to permit states to regulate heavily, and perhaps even prohibit outright, most abortions at any point in pregnancy.

Roe v. *Wade* was based on two conceptual foundations: first, that there is a fundamental constitutional right of privacy broad enough to encompass a woman's decision to have an abortion; and second, that the state's interests in abridging the exercise of this right are related to the stage of pregnancy. The plurality opinion in *Webster* (on which only three justices agreed) ignored the right of privacy altogether. Although the scope of the constitutional right of privacy was the issue on which most friends of the court argued this abortion case, physicians should be pleased that the Court did not seek to limit that right in areas other than abortion. As the American Medical Association properly noted in its own brief on *Webster,* the constitutional right of privacy "simply reflects the historic tradition, embodied in our common law, of recognizing that all medical treatment decisions ordinarily should be made by the patient, after consultation with a physician concerning the risks and benefits of treatment."[11]

Instead the plurality concentrated exclusively on *Roe's* trimester scheme. The plurality said, for example, that "the key elements of the *Roe* framework — trimesters and viability — are not found in the text of the Constitution."[2] The plurality concluded that rather than having to balance the rights of the individual and the interests of the state, states have a compelling interest "in protecting human life throughout pregnancy." If this is true, of course, then the fact that women have a fundamental constitutional right to decide to have an abortion does not help them in a state that outlaws abortion to protect fetal life, since compelling state interests outweigh the rights of the individual.

Four justices indicated that they would uphold any restriction on abortion that "permissibly furthers the State's interest in protecting potential human life." Four others would continue to uphold the balance required by *Roe.* The ninth, Justice O'Connor, can create a five-to-four majority by joining either side of the debate. She had indicated her displeasure with the trimester scheme before *Webster* was decided, and she suggested that the Court determine the constitutionality of state abortion laws on the basis of whether they "unduly burden" a woman's right to an abortion.[12] But because she believed that the three provisions of the Missouri law were consistent with *Roe,* she refused to use *Webster* to reverse or restrict *Roe.*

This is why constitutional law regarding abortion remains the same after *Webster* as it was before. On the other hand, anyone who can count knows that one more change in the Supreme Court's membership, or a shift in Justice O'Connor's thinking, may result in the reversal of *Roe* and the granting of wide powers to state governments to restrict abortions.

What does all this mean to physicians? As a matter of medical practice, *Webster* applies only to physicians practicing in Missouri. There, physicians employed by the state cannot perform any abortion that is not necessary to save the life of the pregnant woman, and no one (whether a state employee or not) can perform any abortion in state facilities that is not necessary to save the life of the pregnant woman. Both sides of the abortion debate agree, however, that in practice the *Webster* opinion has had almost no impact in Missouri, primarily because the 1986 statute that the Court was reviewing had already succeeded in drastically curtailing the number of abortions performed in public hospitals.[13] One part of the law that the Court did not review was its preamble. It says in part that the Missouri legislature finds that "the life of each human being begins at conception . . . [and] unborn children have protectable interests in life, health and well-

being."[14] The Court found that this preamble had not yet been used to limit access to abortion and decided that until it was applied in some concrete way, ruling on its constitutionality would be premature. Since *Webster,* however, the preamble has been used to defend antiabortion demonstrators against charges of trespass in front of Planned Parenthood clinics with the argument that the trespassing was justified because it was necessary to save the lives of unborn babies.[13] At least two Missouri trial judges have already agreed with this unpersuasive defense, and the cases are under appeal.[13]

For physicians in other states, *Webster* means that if their legislatures pass statutes with substantially identical provisions, they will be bound by them. It also means that a majority of the Supreme Court, for the first time in two decades, is willing to discuss abortion rights without reference to the rights of individual women or the rights of their physicians. This could have implications for birth-control measures other than abortion that act after fertilization, as well as for other areas of medical practice, such as the patient's right to refuse treatment. A case substantially identical to the Karen Ann Quinlan[15] case is currently before the United States Supreme Court. The Missouri Supreme Court ruled that the parents of Nancy Cruzan, a young woman in a persistent vegetative state, could not refuse further feeding by gastrostomy tube on her behalf; this ruling was based in large part on the preamble to Missouri's abortion statute.[16]

Thus, the abortion debate has returned to the political arena, where it has been consistently impossible to resolve. In states that decide to add restrictions on abortion, physicians and their pregnant patients may find their medical and moral options sharply limited.

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BOOK REVIEWS

SURGERY OF THE LIVER

Edited by William V. McDermott, Jr. 560 pp., illustrated. Boston, Blackwell Scientific, 1989. $125. (Distributed in the U.S. by Year Book, Chicago.)

This superbly organized book encompasses the bulk of hepatic surgical pathology. McDermott has brought together as contributors some of the most respected physicians in the field. In addition to the contributors from the faculty of the Harvard Medical School and the New England Deaconess Hospital, the editor has called on other internationally known surgeons, such as Calne, Donovan, Orloff, Schwartz, Starzl, Terblanche, Warren, and Walt.

Highly readable chapters span the basic sciences of liver anatomy, pathology, and physiology, taking the reader through the essentials of diagnosis, assessment, and finally, treatment. In the discussion of the treatment of surgical disorders, controversy is allowed to surface, and a spectrum of accepted, though different methods is presented by their respective experts. In areas in which he has a demonstrated interest, McDermott has added editorial commentary to provide the reader with added insight. The addition of specialty chapters on nutrition, transplantation, anesthesia, and pediatric hepatology completes this textbook. Although not intended as a surgical atlas, the book includes operative techniques that are finely illustrated and familiar to most surgeons. A single area of deficiency I would note is the absence of comment on the segmentectomies of Couinaud, methods not widely espoused in the United States. In its scope and style I found this textbook to be a valuable reference addition to every medical library, and I recommend it highly to practicing surgeons, gastroenterologists, and surgical residents in training. I extend my personal congratulations to Dr. McDermott for providing us with this fine textbook.

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SURGERY OF THE OESOPHAGUS

Edited by G.G. Jamieson. 934 pp., illustrated. New York, Churchill Livingstone, 1988. $195.

It is not surprising that a number of books aimed at advancing the medical and surgical care of disorders of the esophagus have been published recently. The past decade has witnessed a resurgence of interest in both benign and malignant diseases of the esophagus, stimulated in part by developments in diagnostic and therapeutic methods and championed largely by surgeons. Professor Jamieson's book, with 124 contributors, is an encyclopedic rendering of the status of esophageal surgery, reflecting many new developments.

A chapter on the history of esophageal surgery serves as a whimsical introduction to the main text, which touches on almost every aspect of esophageal surgery, including anatomy, physiology, diagnosis, anesthesia, and operative complications. Nearly one quarter of the book is devoted to gastroesophageal reflux and its surgical management; motility disturbances and esophageal carcinoma are each allotted 10 percent of the total space. One unique feature is the organization of the last quarter of the book into a single section on